

# NATURAL HISTORY MISCELLANEA

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## American Millipeds of the Family Paeromopidae

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*Paeromopus lysioptetalinus*, a California species established by Karsch in 1881,<sup>2</sup> long remained isolated as something of a taxonomic puzzle. Previously, however, **H. C. Wood** (1864) had described a species under the genus *Spirobolus* (*S. angusticeps*) which can now be definitely recognized as closely related to the form studied by Karsch. In 1895 **O. F. Cook**, after an examination of Karsch's type in the Berlin Museum, proposed for reception of the species a distinct family, the Paeromopidae, a name thus long antedating Californiulidae set up by **K. W. Verhoeff** in 1938<sup>3</sup> for his *Californiulus dorsovittatus* and the Karsch species, the type of which he redescribed under the needless and plainly invalid name *Paeromopellus sphinx*. Since that time the present writer has described a number of additional members of the family.

The Paeromopidae at present are known only from western North America but representatives may well be expected in Japan, etc., as are some species of the closely related family Parajulidae which is also largely North American. The purpose of the present article is to list the species of the family now known and to indicate several new species and genera recognized in a survey of material now in the writer's collection.<sup>4</sup>

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<sup>2</sup>Karsch, F. "Neue Juliden des Berliner Museums," Zeitschr. f. ges. Naturwiss., 54:12, 1881.

<sup>3</sup>Verhoeff, K. W. "Californiulus, n. g. and Paeromopellus n. g. als Vertreter einer neuen Familie der Symphyognatha-Arthropoda," Zool. Anzeiger, 122 (5/6): 113.

<sup>4</sup>In the references given in this paper under the various species, an asterisk (\*) preceding a number designates a figure. In such cases a number followed by a colon indicates a plate; the number or numbers following the colon, a figure or figures.

## Family PAEROMOPIDAE

PAEROMOPIDAE Cook, 1895, Ann. N. Y. Acad. Sci., 9:6.

CALIFORNIULIDAE Verhoff, 1938, Zool. Anzeiger, 122 (5/6): 114.

Genus *Aigon* new

Differing from *Klansolus* in having the lower or anterior process at distal end of the telopodite of the posterior gonopods replaced by a narrower process divided distally into three spines, whereas in *Klansolus* this process or branch is in the form of a characteristic lamellar lobe. The posterior terminal process, furthermore, is evenly curved and finely acuminate instead of being more lamellar and always abruptly bent or geniculate. The median terminal lobe is comparatively reduced in size and lacks the special spine or finger always present in *Klansolus*. The sternite of the posterior gonopods is well developed and at the middle is produced into a slender tongue-like process extending distad between the gonopods.

Orthotype: *Aigon rodocki* new species.

*Aigon rodocki* new species

A darker species than the apparently closely related *A. parvior* of the Flathead region of Montana. Body black, with the legs and antennae of same color or but little lighter; face dusky or black, not clear yellow as in *parvior*.

Antennae long, with articles of usual proportions prevailing in related forms. Eyes very widely separated; the ocelli typically in 4 series; e. g., 6,7,5,3.

The collum in the male with anterior margin obliquely continuous with lower margin with no anterolateral angle or corner, this margin raised; sharply impressed striae above lower angle running across posterior border, the striae replaced across dorsum by a series of rather coarse punctae in front of which are other punctae which are finer and not densely placed. The second tergite also with punctae across dorsum on caudal border and with the usual deep striae down the sides. On the following tergites the striae are present also across the dorsum. Caudal tergite with posterior end rounded, much exceeded by the anal valves.

The structure of the gonopods of the male is represented in Figures 1 and 2.

Number of segments 62-64.

Width 3.5. mm.

Type locality: Idaho; Nez Perce County, Sweetwater. Several males were taken on April 2, 1947, by R. E. Rodock.

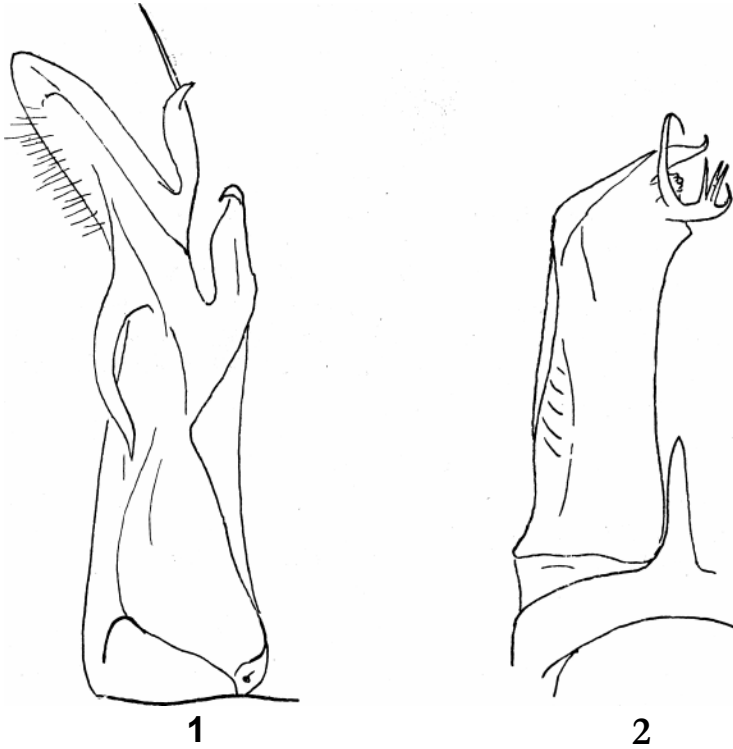


Figure 1. *Aigon rodocki* n. sp. Left anterior gonopod, cephalic aspect.

Figure 2. The same. Left posterior gonopod, cephalic aspect.

*Aigon parvior* (Chamberlin)

*Klansolus parvior* Chamberlin, 1940, Pomona College Journ. Ent. Zool., 32 (4): 83.

Type locality: Montana; Flathead Lake.

While this form is known only from the female, it would seem from its general structure to be close to *rodocki* with which it is accordingly here placed.

**Genus *Atopolus* new**

Distinct from the other genera of the family in having only two branches or processes at the distal end of the telopodite of the posterior gonopods instead of three, the more anterior of these being simple and distally uncate, the posterior one erect and toothed or spinous on its edges.

Orthotype: *Atopolus chamberlini* (Brolemann).

***Atopolus chamberlini* (Brolemann)**

*Atopetholus chamberlini* Brolemann, 1922, Ann. Ent. Soc. Amer., 15: 289, 298; \*15: 6-9; 24: 53-57.

Type locality: California: Mt. Shasta.

**Genus *Californiulus* Verhoeff**

*Californiulus* Verhoeff, 1938, Zool. Anzeiger, 122 (5/6): 113.

Generotype: *Californiulus dorsovittatus* Verhoeff.

This genus *is* like *Klansolus* in having the anteromesal process of the posterior gonopods lamellar in form. The margin of this process or lobe toothed or in part spiniferous. It differs from *Klansolus*, so far as may be deduced from Verhoeff's figures and description, in lacking entirely an intermediate lobe with its characteristic spine.

***Californiulus dorsovittatus* Verhoeff**

*Californiulus dorsovittatus* Verhoeff, 1938, Zool. Anzeiger, 122: 118; \*1-7; 1944, Bull. So. Calif. Acad. Sci., 43: 62; \*4-13.

Type locality: California; Berkeley region, Mt. Harkness.

**Genus *Klansolus* Chamberlin**

*Klansolus* Chamberlin, 1938, Proc. Biol. Soc. Washington, 51: 205.

Orthotype: *Klansolus euphanus* Chamberlin.

This genus, as now conceived, is most readily recognized by the features of the posterior gonopods. In these gonopods the anterior terminal or sub-terminal process is in the form of a lamella concave on its adaxial side, with margins fringed, toothed, or in part spined. Middle process well developed, always presenting a characteristic finger or spine directed into the concavity of the anterior lobe. Terminal or posterior process abruptly bent or geniculate, the terminal portion being thus transverse and concave on the distal margin.

***Klansolus euphanus* Chamberlin**

*Klansolus euphanus* Chamberlin, 1938, Proc. Biol. Soc. Washington, 51: 205.

Type locality: Oregon; Boyer.

***Klansolus socius* Chamberlin**

*Klansolus socius* Chamberlin, 1941, Bull. Univ. Utah, Biol. Ser., 6 (4): 16; \*2: 19; 3: 21-23.

Type locality: Oregon; Wallowa County, 8 miles west of Wallowa.

***Klansolus vicinus* (Chamberlin)***Californiulus vicinus* Chamberlin, 1943, Bull. Univ. Utah, Biol. Ser., 8 (2): 12/\*40-42.

Type locality: California; Shasta County, Dickson Flats.

***Klansolus yosemitensis* (Chamberlin)***Californiulus yosemitensis* Chamberlin, 1941, Bull. Univ. Utah, Biol. Ser., 6 (4): 17, \*3: 21-26.

Type locality: California; Yosemite National Park.

***Klansolus zantus* new species**

This species is like *vicinus* in having a broad orange-colored stripe along the dorsum. This stripe does not extend upon the collum but does run across the anal tergite and down the middle part of the anal valves. The sides of the dorsum are brown below, becoming darker, almost black, adjacent to the dorsal stripe. Legs yellowish brown, darkest distally. Antennae dark brown.

Eyes transversely oblong; consisting of relatively large and distinct ocelli arranged in three transverse series; e. g., 5, 4, 2. Third joint of antennae longest, its length to that of the fourth joint nearly as 5:4; fourth joint scarcely longer than the fifth; sixth article very short.

Collum strongly narrowed down the sides, with the lower and anterior margins forming an oblique line running obliquely cephalodorsad from the inferoposterior corner and showing no anterior angulation; across caudal border, just above margining sulcus, 2 or 3 short striae.

Second and third tergites not striate over dorsum, the fourth free of striae in a narrower middorsal space. Caudal tergite triangular behind, its posterior end rounded, much exceeded by the anal valves. Repugnatorial pores situated well caudad of the segmental sulcus.

Number of segments 62.

Width 3 mm.

Type locality: Oregon; 12 miles east of Cave Junction. One female taken May 29, 1948, by Roth and Brown.

This species differs from the other known representatives of this and related genera in its much smaller size. Its reference to the present genus, in the absence of the male, is tentative.

**Genus *Paeromopus* Karsch***Paeromopus* Karsch, 1881, Zeitschr. f. ges. Naturwiss., 54: 12.*Paeromopellus* Verhoeff, 1938, Zool. Anzeiger, 122 (5/6): 124.Generotype: *Paeromopus lysiopetalinus* Karsch.

Verhoeff's redescription of Karsch's holotype of this species under a new name, *Paeromopellus sphinx*, seems wholly indefensible. While there may be

some inconsistencies between Karsch's verbal description and his type, fortunately preserved, the type specimen itself must be the final court of appeal as to what the original author had. It is to settle questions of this kind that types are selected and preserved.

***Paeromopus angusticeps* (Wood)**

*Spirobolus angusticeps* Wood, 1864, Proc. Acad. Nat. Sci. Philadelphia, p. 16; 1865, Trans. Amer. Phil. Soc., 13: 210; \*37, 37a.

Type locality: California.

Wood described this species from a female. Until it has been rediscovered, or the characters of the females in the family have been worked out comparatively, the reference of this species to this particular genus must remain tentative only. That it belongs in the Paeromopidae seems unquestionable.

***Paeromopus eldoradus* Chamberlin**

*Paeromopus eldoradus* Chamberlin, 1941, Bull. Univ. Utah, Biol. Ser., 6 (5): 7; \*1: 8, 9.

Type locality: California; Eldorado County, Coloma.

***Paeromopus lysiopetalinus* Karsch**

*Paeromopus lysiopetalinus* Karsch, 1881, Zeitschr. f. die ges. Naturwiss., 54: 12.

*Paeromopellus sphinx* Verhoeff, 1938, Zool. Anzeiger, 122 (5/6): 125; \*8, 9.

Type locality: California.

***Paeromopus pistus* Chamberlin**

*Paeromopus pistus* Chamberlin, 1941, Bull. Univ. Utah, Biol. Ser., 6 (5): 7; \*1: 8, 9.

Type locality: California; Palo Alto County, Stanford.

*Natural History Miscellanea*, a series of miscellaneous papers initiated in 1946 as an outlet for original articles, more or less technical in nature, one to four pages in length, in any field of natural history. Individual issues, published at irregular intervals, are numbered separately and represent only one field of specialization; e. g., botany, geology, entomology, herpetology, etc. The series is distributed to libraries and scientific organizations with which the Academy maintains exchanges. A title page and index will be supplied to these institutions when a sufficient number of pages to form a volume have been printed. Individual specialists with whom the museum or the various authors maintain exchanges receive those numbers dealing with their particular fields of interest. A reserve is set aside for future exchanges and a supply of each number is available for sale at a nominal price. Authors may obtain copies for their personal exchanges at the prevailing rates for similar reprints.

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